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## Description

The present invention relates to a holder for a paper roll, preferably a roll of soft paper, in which holder the paper web forming said roll is drawn therefrom in the axial direction of the roll and separated from said roll against a tear edge located adjacent one end part of the paper roll and positioned perpendicularly to the axis of said paper roll.

There are essentially two types of paper roll holders available at present on the market, e.g. toilet paper holders and holders for household paper. With the first type of holder, the paper is laid in the holder and drawn horizontally therefrom. One drawback with this type of holder, illustrated for example in DE-OS-2552444, is that the paper must be drawn from the holder relatively slowly, in order to prevent the roll from rotating initially too quickly, such as to form a loose length of paper within the holder. A further drawback is that the paper web is drawn from the holder horizontally, which means that the paper must be pulled in a direction that lies substantially at right angles to the axis of the roll, therewith to ensure that the pulling force exerted on the paper web drawn from the holder is not so unevenly distributed as to cause the paper web to be torn unintentionally. Consequently, the holder must be placed in a position suitable therefor, which is often difficult to achieve.

With the second type of holder the paper roll is held vertically, with one end surface of the roll resting on the bottom of the holder. In this case the paper web is drawn downwardly from the centre of the paper roll in the direction of the roll axis, with the roll held stationary in the holder. The drawbacks associated with the first type of holder are thus not found with the second type of holder. However, this second type of holder, illustrated for example in Swedish Patent Specification No 304 363, is encumbered with the drawback that because the paper roll remains stationary while drawing the paper web therefrom, the web becomes twisted, sometimes to such an exaggerated extent that it can only be separated from the roll with great difficulty, for example by applying powerful tugging forces. Once separated from the remainder of the roll, the paper web has to be smoothed out before it can be used, which can be both laborious and inconvenient.

Consequently it is a primary object of this invention to provide a paper roll holder of the kind mentioned in the introduction which will a) enable paper web to be drawn in an optimal direction, i.e. in a downward direction, b) enable rotational movement of the roll to be restricted to a desired extent, and c) deliver the paper web in a flat condition.

This object is achieved fully by means of the invention as defined in the following claims.

The invention will now be described in more detail with reference to the accompanying drawing, in which

Figure 1 is a simple illustration of the fundamental principles of the invention;

Figure 2 illustrates one embodiment of the invention;

Figure 3 illustrates another embodiment of the invention;

Figure 4 illustrates the insert in the holder of Figure 3 turned through 90°;

Figure 5 is a sectional view taken centrally through the casing of the holder illustrated in Figure 3;

Figure 6 illustrates the insert of Figure 4 from above; and

Figure 7 is a sectional view taken on the line VII—VII in Figure 5.

Figure 1 illustrates the fundamental principles of the invention. A paper roll, for example a roll of toilet paper or household paper, is positioned so that the longitudinal axis of the roll extends vertically, or at least substantially vertically to the base of a holder, not shown in Figure 1. The paper web 3 is drawn tangentially from the outer periphery of the roll 1, in the direction of the arrow A, and the roll rotates as the paper web is drawn therefrom. The holder (not shown) incorporates a direction changing edge 4, hereinafter designated web guide edge, which forms an angle of preferably 45° with the axis 2. This angle may vary, however, between 40° and 50°. The paper web is passed over this guide edge 4, which is smoothly rounded, and thereafter extends in the direction of the arrow B, i.e. substantially parallel with the axis 2. Since the roll 1 rotates as the paper web 3 is drawn therefrom, i.e. so that the paper web does not twist, the web will extend in a flat condition from the tear edge 5 of the holder (not shown in Figure 1), preferably from a location rearwardly of the tear edge, so that the length of paper taken from the roll can be separated therefrom, by drawing the free end of said length obliquely upwards or obliquely downwards. The guide edge 4 is assumed here to be rectilinear and to have the form of a flat metal sheet for example. However, even though a device that presents a rectilinear guide edge 4 has been found highly satisfactory in practice, it has the drawback of taking a relatively large amount of space.

Figure 2 illustrates an embodiment which in the main requires no more space than the paper roll 1, from which the paper web is drawn in the aforescribed manner down to and beneath a serrated tear edge 5. The paper roll holder 6 comprises a round-cylinder 7 which has an open upper end and which has provided in the peripheral wall thereof a slot 8 through which the paper web is passed. The bottom of the cylinder is closed, either completely or partially, to form a support for the roll placed therein. Located in the vicinity of the bottom of the cylinder 7 is a ring 9, which is shown partially cut-away. The ring 9 is attached to the rear of the cylinder 7 by means of studs 10 or the like, and the internal diameter of the ring exceeds the external diameter of the cylinder 7, so as to form a gap 11, which is fully

open on the forwardly facing side of the holder arrangement, so as to enable the paper web 3 to be drawn therethrough. In the case of the Figure 2 embodiment, the rectilinear guide edge 4 illustrated in Figure 1 is formed on a cylindrical surface and is spaced from the outer peripheral surface 12 of the roll at a distance which remains substantially unchanged along the whole of the guide edge. The helical line thus formed has a pitch of 45°, with possible deviations according to the foregoing, and results in the aforesaid change in direction of the web 3, i.e. 90°, as the web is drawn from the roll. The length of paper web located beneath the tear edge 5 is separated from the roll 1, by drawing the web against the tear edge.

Figure 3 illustrates a preferred embodiment of a holder according to the invention. The holder of this embodiment is fitted with an outer protective casing 13, which both shields the paper roll 1 and defines a gap 14 together with the part-cylindrical wall 15 (vide Fig 4) on which the guide edge 4 is formed. As will best be seen from Figures 4 and 6, the part-cylindrical wall 15 embraces an angle of approximately 190°, although this angle can vary in dependence on the width of the paper web, and may in the case of toilet paper, for instance, be 90°. The helical guide edge 4 extends from the upper part 19 of the wall 15 to the lower edge part 20 of said wall, at an angle of preferably 45° to the central vertical axis of the roll, as before mentioned, i.e. the helical guide edge has a pitch angle of 45°. The part-cylindrical wall 15 is located on a base plate 16, which supports the paper roll 1. The base plate 16 and the part-cylindrical wall 15 connected thereto together form an insert in the casing 13. In the illustrated embodiment the base plate 16 is provided with two mutually opposed sprung locking means 31 and 32 which, when the insert together with a paper roll is placed in the casing 13, are brought into coaction with a respective one of two locking shoulders 33 and 34 on the casing 13, thereby to secure the insert to the casing. As will be seen from Figure 5, which shows the casing 13 from one side thereof, the forwardly located part of the casing presents a tear edge 5, which embraces the lower part of the casing through an angle of about 190°. This lower part of the casing has provided therein mutually opposed openings 21, which facilitate the insertion of the insert and the positioning of respective locking means 31, 32 against the locking shoulders 33, 34.

As illustrated in Figures 5 and 6, the rearwardly located part of the casing 13 has provided thereon guides 23 which are intended to co-operate with corresponding channels provided on an attachment plate 24, which is secured to a structural supporting wall.

The embodiment illustrated in Figure 4 incorporates a spring-loaded pusher 25, which is intended to hold the paper roll 1 pressed against the part-cylindrical wall 15, as the roll progressively decreases in diameter.

In the foregoing it has been assumed that one end of the paper roll rests freely on a base, or base flange, in the holder, in the absence of any form of

guide means. It will be understood, however, that the roll can be guided in a known manner with the aid of a post 26 (Figure 1) which extends up through the central bore of the roll, either completely or partially. This post may be attached to the lid 27 (Figure 5) of the casing, or attached to the base plate 16.

As will best be seen from Figure 7, the forwardly located part of the casing 13 is part-cylindrical, and the edge portions of the part-cylinder merge with the side walls of a frustoconical configuration, when seen in cross-section. Figures 4 and 6 illustrate support shoulders 35 which are intended to support the rearwardly located edge part of the casing 13.

The base plate 16 may also be provided with a central aperture, so that the paper web can also be withdrawn from the interior of the roll 1 in a conventional manner, if desired. Such an aperture is indicated at 28 in Figure 3. The risk of the roll rotating rapidly when unreeling paper therefrom is eliminated partly through the frictional contact of the paper web with the guide edge and/or partly through frictional contact of the bottom of the roll with the base of the holder.

#### Claims

1. A holder (6) for a paper roll (1), preferably a roll of soft paper, in which holder the paper web forming said roll is drawn therefrom in the axial direction (26) of the roll and separated from said roll against a tear edge (5) located adjacent one end part of the paper roll and positioned perpendicularly to the axis of said paper roll, characterized in that the holder is provided with a guide edge (4) over which said paper web is intended to pass from the outer peripheral surface of the paper roll (1) and said guide edge is positioned in such a way that when the paper web is drawn from the holder in said axial direction said guide edge is operative in changing the direction of movement of the web, so that said web is drawn from the paper roll in a direction substantially at right angles to the axis (2) of said roll.

2. A holder according to Claim 1, characterized in that the guide edge (4) is formed on a cylindrical surface (7; 15) which embraces the paper roll (1) either totally or partially.

3. A holder according to Claim 2, characterized in that the guide edge (4) comprises an edge part of a part-cylindrical guide means (15) remote from a tear edge (5).

4. A holder according to Claim 3, characterized in that the part-cylindrical guide means (15) includes a base plate (16) which is provided with a central aperture (28) through which paper web (3) can be drawn from the centre bore of the roll (1).

5. A holder according to Claim 2, characterized in that the guide edge (4) is formed by a slot (8) which passes through a cylindrical tube (7) encasing the paper roll (1).

6. A holder according to Claim 1, characterized in that the guide edge (4) is rectilinear.

7. A holder according to any of Claims 1—6,

characterized in that the guide edge (4) forms an angle with the cylinder axis (2) of the paper roll (1) of about 45°.

8. A holder according to any of Claims 1—6, characterized in that the guide edge (4) is gently rounded.

#### Patentansprüche

1. Halter (6) für eine Papierrolle (1) vorzugsweise eine Rolle aus weichem Papier, aus dem die Papierbahn, die die Papierrolle bildet, in axialer Richtung (26) der Rolle herausgezogen und von der Rolle mittels einer Reißkante (5), die gegenüber dem einen Endabschnitt der Papierrolle und senkrecht zu der Achse der Papierrolle angeordnet ist, abgetrennt wird, dadurch gekennzeichnet, daß der Halter mit einer Führungskante (4) versehen ist, über die die Papierbahn vom Außenumfang der Papierrolle (1) aus geführt wird und daß diese Führungskante derart angeordnet ist, daß, wenn die Papierbahn in axialer Richtung aus dem Halter gezogen wird, die Führungskante die Bewegungsrichtung der Materialbahn derart ändert, daß die Materialbahn von der Papierrolle in einer Richtung abgezogen wird, die mit der Achse (2) der Papierrolle im wesentlichen einen rechten Winkel bildet.

2. Halter gemäß Anspruch 1, dadurch gekennzeichnet, daß die Führungskante (4) auf einer zylindrischen Fläche (7; 15) gebildet wird, die die Papierrolle (1) gänzlich oder teilweise umschließt.

3. Halter gemäß Anspruch 2, dadurch gekennzeichnet, daß die Führungskante (4) einen Kantenteil eines teilzylindrischen Führungsmittels (15) abgekehrt von einer Reißkante (5) aufweist.

4. Halter gemäß Anspruch 3, dadurch gekennzeichnet, daß das teilzylindrische Führungsmittel (15) eine Grundplatte (16) einschließt, die mit einer zentralen Öffnung (28) versehen ist, durch die die Papierbahn (3) aus der Mittelöffnung der Papierrolle (1) herausgezogen werden kann.

5. Halter gemäß Anspruch 2, dadurch gekennzeichnet, daß die Führungskante (4) von einem Schlitz (8) gebildet ist, der sich in einem zylindrischen Rohr befindet, das die Papierrolle (1) gehäuseförmig umgibt.

6. Halter gemäß Anspruch 1, dadurch gekennzeichnet, daß die Führungskante (4) geradlinig ist.

7. Halter nach einem beliebigen der Ansprüche 1 bis 6, dadurch gekennzeichnet, daß die Führungskante (4) mit der Zylinderachse (2) der Papierrolle (1) einen Winkel von etwa 45° bildet.

8. Halter nach einem beliebigen der Ansprüche

1 bis 6, dadurch gekennzeichnet, daß die Führungskante (4) sanft gerundet ist.

#### Revendications

1. Support (6) pour un rouleau de papier (1), de préférence un rouleau de papier lisse, grâce auquel la bande de papier formant le rouleau est tirée du rouleau dans la direction axiale (26) du rouleau et séparée dudit rouleau contre une arête de coupe (5) placée à côté d'une première partie d'extrémité du rouleau de papier et orientée perpendiculairement à l'axe dudit rouleau de papier, caractérisé en ce que le support est équipé d'une arête de guidage (4) par dessus laquelle ladite bande de papier est destinée à passer en quittant la surface périphérique extérieure du rouleau de papier (1) et ladite arête de guidage est placée de telle façon qu'au moment où la bande de papier est tirée du support dans ladite direction axiale ladite arête de guidage soit effective pour modifier la direction du mouvement de la bande, de sorte que la bande est tirée du rouleau de papier dans une direction sensiblement à angle droit de l'axe (2) dudit rouleau.

2. Support selon la revendication 1, caractérisé en ce que l'arête de guidage (4) est formée sur une surface cylindrique (7; 15) qui entoure le rouleau de papier (1) soit totalement soit partiellement.

3. Support selon la revendication 2, caractérisé en ce que l'arête de guidage (4) comprend une partie d'arête du moyen de guidage partiellement cylindrique (15) éloignée d'une arête de coupe (5).

4. Support selon la revendication 3, caractérisé en ce que le moyen de guidage partiellement cylindrique (15) comprend un socle plat (16) qui présente une ouverture centrale (28) par laquelle la bande de papier (3) peut être dégagée de l'orifice central du rouleau (1).

5. Support selon la revendication 2, caractérisé en ce que l'arête de guidage (4) est constituée par une fente (8) qui traverse un tube cylindrique (7) entourant le rouleau de papier (1).

6. Support selon la revendication 1, caractérisé en ce que l'arête de guidage (4) est rectiligne.

7. Support selon l'une quelconque des revendications 1 à 6, caractérisé en ce que l'arête de guidage (4) fait avec l'axe du cylindre (2) du rouleau de papier (1) un angle de 45° environ.

8. Support selon l'une quelconque des revendications 1 à 6, caractérisé en ce que l'arête de guidage (4) est doucement arrondie.

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Fig. 1

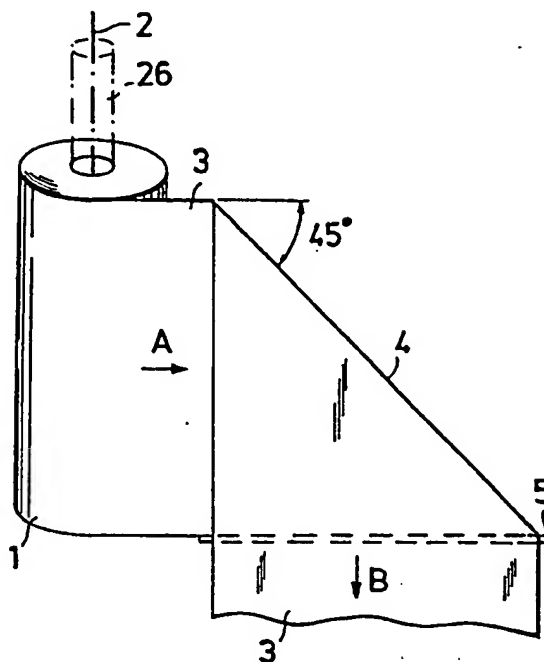


Fig. 2

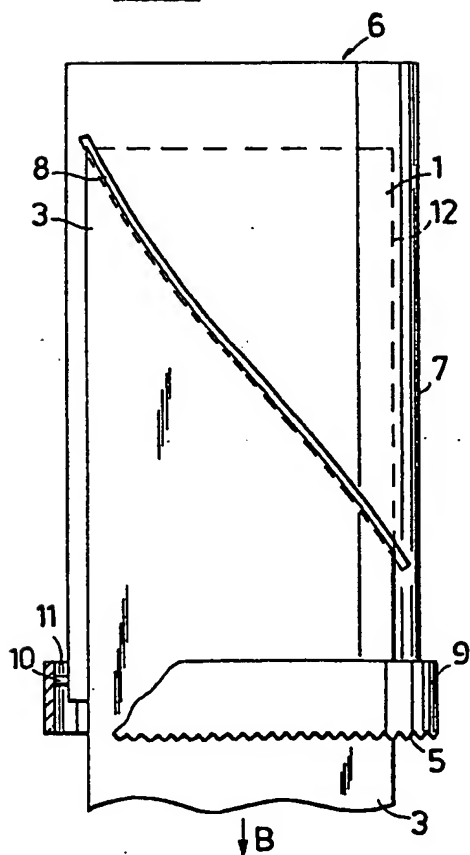


Fig. 3

